

# APPLICATION / AUTHORIZATION TO CONDUCT QUALIFICATION TEST

## MIL-PRF-55110, MIL-P-50884

### SECTION I (To be completed by manufacturer)

|  |                      |          |   |          |
|--|----------------------|----------|---|----------|
| SPECIFICATION & DATE (WITH AMENDMENT & DATE WHEN APPLICABLE)   |                      |          | DATE OF APPLICATION   |          |
| MANUFACTURER'S NAME AND MAILING ADDRESS  |                      |          | MANUFACTURER'S PLANT LOCATION   |          |
| COMPANY CONTACT, PHONE, FAX NUMBER, AND E-MAIL   |                      |          | COMPANY CAGE CODE: _____<br>NOTE: CAGE CODE MAY BE OBTAINED BY VISITING<br><a href="http://www.ccr.dlis.dla.mil">www.ccr.dlis.dla.mil</a> .       |          |
| THIS QUALIFICATION WILL BE A:<br><br>INITIAL: ___ REQUAL: ___ CONTRACT SERVICE: ___ PROCESS CHANGE: ___<br><small>(SPECIFY IN ADDITIONAL INFORMATION BELOW)</small><br>IF REQUAL, HAS PAST RETENTION BEEN REPORTED? YES: ___ NO: ___ |                      |          | QUALIFICATION TESTING WILL BE PERFORMED AT:<br><br>THIRD PARTY LAB: ___ INTERNAL LAB: ___<br><br>IF INTERNAL LAB, LIST DSCC APP ROVAL DATE: _____ |          |
| MASTER DRAWING<br>(INCLUDE DASH NUMBER, REVISION AND DATE)   | ETCHBACK<br>(Y OR N) | QUANTITY | BASE MATERIAL SPECIFICATION(S)  |          |
|  |                      |          | RIGID   | FLEXIBLE |
|  |                      |          |   |          |

ADDITIONAL INFORMATION

MANUFACTURER REPRESENTATIVE: SECTION III (see Page 2) MUST BE COMPLETED AND SUBMITTED WITH SECTION I. READ SECTIONS V, VI, VII, and VIII BEFORE SIGNING THIS FORM. The undersigned certifies that the information submitted to the qualifying activity in this application is correct and that samples will be built solely at the plant(s) identified herein. The undersigned also agrees to the conditions of the applicable DoD specification, SD-6, and to the conditions in Sections VI and VII of DSCC Form 19W. When granted, authorization to complete testing is valid for one year. All test reports submitted shall be prepared in accordance with Section VI and SD-6.

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_ DATE: \_\_\_\_\_

### SECTION II (To be completed by DSCC-VQE)

|                    |                |               |   |  |
|--------------------|----------------|---------------|---|--|
| TEST REPORT NUMBER |                |               | PRINTED BOARD CLASSIFICATION & BASE MATERIAL TYPE |  |
| DATE IN            | CONTROL NUMBER | DATE ASSIGNED | DSCC LETTER NUMBER                                |  |
| IN REPLY REFER TO  |                |               | DATE APPROVED                                     |  |

TEST LABORATORY

CHIEF, DSCC-VQE  
SOURCING AND QUALIFICATIONS UNIT

**SECTION III MANUFACTURER INSPECTION OF PRODUCT FOR DELIVERY**  
(To be completed by manufacturer and submitted with SECTION I)

MANUFACTURER'S PRODUCT ASSURANCE PROCEDURE NUMBER(S) & REVISIONS

DOD SPECIFICATION NUMBER  
& AMENDMENT

LIST ALL MEASURING AND TEST EQUIPMENT THAT WILL BE USED WITHIN THE MANUFACTURER'S FACILITY TO ENSURE SUFFICIENT ACCURACY AND PERMIT SATISFACTORY PERFORMANCE OF THE REQUIRED INSPECTIONS (MICROMETERS, CALIPERS, ETC).

| SPEC PARAGRAPH OR<br>TEST METHOD | EQUIPMENT TYPE | EQUIPMENT<br>MANUFACTURER | TYPE OR<br>MODEL | SERIAL OR<br>INVENTORY NUMBER | DATE OF<br>CALIBRATION |
|----------------------------------|----------------|---------------------------|------------------|-------------------------------|------------------------|
|                                  |                |                           |                  |                               |                        |

**SECTION IV TEST LABORATORY CERTIFICATION OF TEST RESULTS**  
(To be completed by the test laboratory)

TEST LABORATORY NAME AND ADDRESS

TEST SPECIMEN DESCRIPTION

PRINTED BOARD CLASSIFICATION: \_\_\_\_\_

BASE MATERIAL TYPE,  
SPECIFICATION, AND  
CONSTRUCTION: \_\_\_\_\_

ETCHBACK (Y/N): \_\_\_\_\_ MASTER DRAWING: \_\_\_\_\_

TEST RESULTS / REMARKS

TEST LABORATORY (INTERNAL OR THIRD PARTY)

The test laboratory identified above agrees to the conditions as stated in Chapter 4 of SD-6, and Section VI of DSCC Form 19W. Further, the undersigned certifies that all tests and items included in this report were performed in full compliance with all provisions of the DoD specification using test facilities which have been inspected and found suitable by the qualifying activity.

NAME: \_\_\_\_\_  
(LABORATORY REPRESENTATIVE)

TITLE: \_\_\_\_\_

SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

## SECTION V INSTRUCTIONS

FOLLOWING IS A SUMMARY OF THE QUALIFICATION PROCESS AND INSTRUCTIONS FOR DSCC FORM 19W:

1. The manufacturer must fill out all information in Section I (page 1) and Section III (page 2). Pages 1 and 2 of DSCC Form 19W must be sent to the qualifying activity. The manufacturer should keep pages 3, 4 and 5 for its own reference. For initial qualifications, the manufacturer must attach copies of their product assurance procedures in accordance with paragraph A.4.5.5.2 of MIL-PRF-55110 and MIL-P-50884. For requalifications the manufacturer must attach any changes to their previously approved product assurance procedures.
2. The qualifying activity will review and evaluate the information contained in Sections I and III of DSCC Form 19W and will return the form, with Section II completed, to the manufacturer.
3. DSCC Form 19W with Section II completed (signature & date) shall constitute the authorization to perform qualification testing.
4. The manufacturer produces 4 qualification test samples. The first two are tested by the manufacturer for in-process and group A testing.
5. The manufacturer shall then send the in-process and group A test data, tested samples, two untested qualification test samples with copies of all certificates of conformance (C of C's) for all printed board materials used to build the samples, and the completed DSCC Form 19W to the designated suitable qualification test laboratory for qualification testing. The qualifying activity will supply an up-to-date list of suitable test laboratories upon request.
6. When the qualification testing is complete, the suitable test laboratory shall incorporate Section I, II, III and IV of DSCC Form 19W into the qualification test report. The qualification test report shall comply with the requirements of Section VI of DSCC Form 19W.
7. The qualifying activity will then evaluate the test report and either grant qualification or take other action(s).

Please contact DSCC-VQE by mail, phone, fax, or e-mail for additional qualification information. The most current electronic version of DSCC Form 19W is available at the DSCC-VQE web site (see URL below). Obsolete editions may be accepted by the qualifying activity.

Defense Supply Center Columbus  
3990 East Broad Street  
Columbus, OH 43213  
ATTN: DSCC-VQE

Telephone: (614) 692-0678  
Facsimile: (614) 693-1659  
or (614) 692-6942

URL: <http://www.dsccl.dla.mil/offices/VQ>  
then select VQE  
VQE Email: [5998.qualifications@dsccl.dla.mil](mailto:5998.qualifications@dsccl.dla.mil)

## SECTION VI QUALIFICATION TESTING REQUIREMENTS

MANUFACTURERS AND TESTING LABORATORIES AGREE TO THE FOLLOWING CONDITIONS

1. Authorizations to conduct qualification testing are valid for 12 months. Authorizations will be canceled if the qualification tests have not been completed within 12 months from the "DATE APPROVED" block in Section II. If an extension of time is needed, please contact the qualifying activity prior to the expiration date.
2. Only test equipment that has been determined suitable for qualification testing by the qualifying activity shall be used.
3. Products subjected to qualification tests must have been manufactured at the plant location(s) indicated in Section I of DSCC Form 19W.
4. If any disqualifying or test equipment problems are encountered during qualification testing, discontinue testing and contact the qualifying activity for instructions. The qualifying activity shall to be notified within 3 calendar days of the problem.
5. TEST REPORTS: The original test report, prepared in accordance with SD-6 "Provisions Governing Qualification" (available from the Document Automation and Production Services (DAPS), Building 4D (DPM-DODSSP), 700 Robbins Avenue, Philadelphia, PA 19111-5094) format, properly collated and fastened with all pages numbered must be sent to the qualifying activity. The test report shall include the following items:
  - a. Cover sheet.
  - b. Completed Sections I, II, III and IV of DSCC Form 19W.
  - c. A list of the printed board materials used and the certification of conformance for the printed board material to the applicable specification.
  - d. Compilation of the test data, including actual readings of time, temperature, electrical, and mechanical measurements must be shown in the original test data. If calculations are required, the formulas must be indicated.
  - e. Photographs of failures, at a minimum x50 magnification, of the following microsections;  
(1) as received, (2) thermal stress, (3) thermal shock, (4) rework simulation, and (5) plating thickness.
  - f. Moisture and insulation resistance chamber temperature and humidity charts.
6. A separate test report number is required for each test report.
7. Erasures or "white out" of test data will not be accepted. Corrections must be made by "line out" with a single line and the correct entry must be made immediately adjacent to the "lined out" entry.
8. All required test samples shall be furnished with the test report at no charge to the Government. The test samples will not be returned, unless authorized by the qualifying activity.
9. When testing is performed in more than one test location, the manufacturer of the product will be responsible for combining the results of the testing into one composite report for each product being tested.
10. Unless otherwise specified, precision for all measurements shall be to the same number of significant digits as the specification requirement. Note that some specification requirements are actually percentages of the specified parameter. For example, if you are allowed a 20% reduction to an annular ring requirement of 0.002", you must make measurements four decimal places.

## SECTION VII PROVISIONS GOVERNING QUALIFICATION

THE APPLICANT AGREES TO THE CONDITIONS IMPOSED BY SD-6 "PROVISIONS GOVERNING QUALIFICATION" AND CERTIFIES THE FOLLOWING:

1. That it is the manufacturer of the product whose name and plant location are as they appear in Section I of this document.
2. That it has been determined from actual test results that its product conforms to the applicable specification.
3. That it will supply for use of the Government products which meet the requirements of the specification in every respect.
4. That it will not apply for retest of the product until satisfactory evidence is furnished to the qualifying activity that all of the defects which were disclosed by previous test have been corrected and accepted by the qualifying activity.
5. That it will not state or advertise that the product is the only product so qualified or in any way imply that the Department of Defense endorses its product.
6. That it will notify the qualifying activity of any change (material, process or equipment) in its product after the qualification approval and will state at the same time whether in its belief the change will or will not prejudice the capability of the product to meet the qualification test requirements.
7. That it will notify the qualifying activity of the discontinuance of manufacture of a product at the plant location(s) listed on the QPL.
8. That it will not certify or claim that products conform to the specification that have not passed all "inspection of product for delivery" (in-process and group A) requirements, or allowed for change in sample configuration or location.
9. That it has and will maintain effective management for quality, clearly prescribed and documented by the manufacturer. Manufacturer personnel performing quality functions shall have sufficient, well-defined responsibility, authority, and the organizational freedom to identify and evaluate product quality problems and to initiate, recommend, and enforce solutions. Management shall periodically review the status of the quality program for effectiveness.
10. That it shall submit a statement signed by a responsible official of management that if the product has been removed from the QPL the manufacturer shall take the responsibility of notifying its customers within 3 working days of notification of removal. When deemed necessary the Government reserves the right to publicize the removal, including the reason for removal with copies to the qualifying activity. The Government may exercise this right through such channels as the Commerce Business Daily, Government Industry Data Exchange Program (GIDEP), or appropriate trade publications and associations.
11. That it agrees to provide the Government access, upon request, to technical records, personnel, and facilities pertaining to manufacturing, processing, inspection, and testing to assure compliance with all specification requirements.
12. All manufacturing must be performed at the plant location(s) to be listed on the QPL.
13. Manufacturers approved for listing on the QPL are authorized to perform "inspection of product for delivery" (In-process and group A tests) within their own facility. If the manufacturer is not capable or deemed incapable by the Government of performing "inspection of product for delivery" (in-process or group A), testing must be performed at a suitable test laboratory that has been approved for listing on the current issue of DSCC's "List of Commercial Laboratories Suitable for Testing Military Devices".
14. Periodic testing must be performed at a facility that has been granted Laboratory Suitability status by the qualifying activity. Manufacturers wishing to perform periodic testing in their own facility must apply for and receive laboratory suitability approval from the qualifying activity.
15. Manufacturers planning changes in ownership, company name, or plant location and wish their qualification status to be transferred must have the changes approved by the qualifying activity prior to the changes (before production line shut down for plant relocations) or loss of qualification may result.
16. IT IS THE RESPONSIBILITY OF THE MANUFACTURER TO KNOW ITS QUALIFICATION EXPIRATION DATE(S) AND TO REQUALIFY BEFORE EXPIRATION. Manufacturers that are removed from the Qualified Products List, by either expiration of qualification or by action of the qualifying activity in accordance with Chapter 3 of SD-6, must immediately stop production and shipment of product and notify their customers in writing with copies to the qualifying activity. If the manufacturer has production lots in progress, contact the qualifying activity for information on lot disposition.
17. Retention reporting periods will be established by the qualifying activity at the time of qualification. Retention reports shall include data of the previous qualification reference number, when available. The retention report consisting of a monthly summary of "inspection of product for delivery" (in-process and group A) and "periodic inspection" (group B and/or group C, when applicable) is to be authenticated by your Government Quality Assurance Representative (QAR), and submitted to the qualifying activity within 60 days of the end of the reporting period each year, or loss of qualification may result. As a minimum the data shall include the results of tests, including reworked lots, failure mode for all failed lots, and raw test data for all periodic inspection tests. Other data must be submitted upon request by the qualifying activity. Requirements for extent of qualification shall apply. If no production occurs during the reporting period a report shall be submitted stating no production and that capability has been maintained.
18. Test coupons used in performing "Inspection of product for delivery" and "Periodic inspection" and the associated test data (raw data) as well as all unused test coupons shall be retained for three years unless a longer time is specified by the customer or qualifying activity. When a qualified manufacturer transfers original data and/or test coupons to the customers, the manufacturer must have prior approval from the qualifying activity and a method for getting access to the transferred data and/or test coupons. In addition, the qualified manufacturer must assure that the data and/or test coupons are maintained by the customer for the three year minimum time period. Lost or inadequate number of test coupons or data may result in loss of qualification.

## SECTION VIII GENERAL INFORMATION FOR MANUFACTURERS

**Introduction:** This section is intended as a guide to help understand some of the requirements of the specifications and to emphasize some aspects of the DoD Standardization Program that manufacturers must consider when supplying QPL product. MIL-PRF-55110 and MIL-P-50884 are conventional specifications dependent on end item testing to assure compliance. Manufacturers who have established quality systems, process controls, and long term reliability programs are encouraged to participate in the MIL-PRF-31032 Qualified Manufacturers List (QML) program.

**Inactive for new design:** MIL-PRF-55110 and MIL-P-50884 are both "inactive for new design". This means designers of new systems are encouraged to reference MIL-PRF-31032 instead of using MIL-PRF-55110 or MIL-P-50884. Designers have the flexibility to use MIL-PRF-55110 or MIL-P-50884 if they desire. DSCC-VQE will continue to maintain the Qualified Products Lists (QPL) for MIL-PRF-55110 and MIL-P-50884 to support existing and future designs.

**A note on revisions and amendments:** The manufacturer must determine the specific revision and amendment of the specification required by the customer. Some customers may require past revisions and/or amendments due to higher level contractual requirements. In these cases the manufacturer must comply with all of the requirements of the applicable revision and amendment. The revision and amendment must be conveyed to the test laboratory for group B testing so the applicable printed board parameters can be verified. Refer to Appendix D of both MIL-PRF-55110 and MIL-P-50884 for additional discussion on previous revisions and amendments.

**Design standard:** It is important that a manufacturer clearly identify the design standard used for the master drawing before production begins. The design standard is used not only used for coupon layout and configuration, but also for printed board parameters when the drawing doesn't specify a value such as plating thickness, annular ring, etc. This design standard must also be conveyed to the test laboratory performing group B inspection so those parameters can be accurately verified. If the customer does not specify a particular design standard, use the default design standard listed in the specification.

**"As specified":** When the phrase "as specified" is used in MIL-PRF-55110 or MIL-P-50884 without further reference it means the value for the particular parameter will be found on the master drawing. Both specifications identify default design standards to use when these parameters are not listed in the master drawing. This approach gives the designer maximum flexibility to alter the standard design criteria to accommodate advances in manufacturing capability. It also relieves the designer of the burden of specifying all of the design criteria on the master drawing because the default values are already in the design standard. It is the printed board manufacturer's responsibility to review the printed board procurement documentation, including the master drawing, contract, artwork, purchasing documents, etc., to determine the printed board parameters prior to production.

**Material requirements:** The printed board materials used must comply with the material requirements specified in the printed board procurement documentation. If the documentation specifies material that cannot be acquired, such as laminates certified to MIL-S-13949 (which was cancelled November 30, 1998), the manufacturer must consult their customer to determine the new base material requirements. To meet the material inspection requirements of MIL-PRF-55110 and MIL-P-50884 the manufacturer must have documentation showing compliance to the customer's material requirements, including when the material requirements are different than what is actually listed on the master drawing.

**QPL testing requirements:** Because of the dependence on end item testing for MIL-PRF-55110 and MIL-P-50884, manufacturers must give special attention to the specified tests and assure full compliance to every detail of the test method. All tests specified must be performed as required. It is the manufacturer's responsibility to assure that all tests are performed, including adding additional test coupons and performing some tests in-process when necessary. As a minimum the manufacturer must retain the following information for each inspection lot:

1. Part number and traceability information in accordance with paragraph A.3.9 of both specifications.
2. Lot size including number of printed boards and number of panels.
3. Sample size, number passed and number failed for each test (sample sizes vary from test to test).
4. Read and record plating thickness measurements for each sample. Note that all microsection evaluations are performed on thermal stress and as-received microsections.

**Retention reports:** Retention reporting periods for each manufacturer are assigned on the DSCC notification of qualification letter. Retention reports are due within 60 days of the end of the reporting period to allow the manufacturer to complete group B testing. Retention reporting information may be summarized on DSCC Form 36W or on an equivalent manufacturer generated format. Photocopies of groups B and C data must be submitted with the report.

**Group B failures:** Samples selected for group B testing represent all other production for that qualification for the month. When a group B failure occurs, the manufacturer must immediately take the following actions:

1. Notify DSCC-VQE of the failure.
2. Notify the customer of the failed lot that the product fails to meet the requirements of the specification.
3. Discontinue further production of printed boards covered by the same qualification as the failed lot until corrective actions for the failure have been approved by DSCC-VQE.
4. If there were more than one lot produced during the production month, submit samples from the next most complex lot from the failed production month. All other lots, represented by the failed lot produced during that month, are suspect until group B testing is passed.

**QPL/QML Appendix:** Appendix B entitled "Optional QPL/QML Product Assurance Requirements for Qualified Manufacturers List Programs" may be found in both MIL-PRF-55110 and MIL-P-50884. This appendix applies only to manufacturers who are qualified to MIL-PRF-31032 and allows them to use their existing QML process to meet the requirements of the QPL specifications. This allows manufacturers to have one process for all military printed boards produced.